

國立中山大學九十一學年度博士班招生考試試題

科目：企業管理【企管系】

共 / 頁 第 / 頁

以下兩題中文申論題每題 25 分，合計為 50 分。解題時，切忌空泛且無根據之陳述，任何論點皆請依企業管理的功能、概念、理論或模式作為說明之依據，否則不予計分。

1. 台灣的企業不分產業、規模紛紛西進大陸市場，引起國內一陣爭論。這些爭論可分為多種論點，請問：您的論點為何？（25%）

2. 最近網路上有一則消息：

台灣一張當季流行 CD 的平均價格是新台幣 400 元(約美金 11.5 元)

台灣國民年所得平均為美金 12,000 元

美國一張流行 CD 的平均價格是美金 12 元

美國國民平均年所得美金 32,000 元

日本一張流行 CD 的平均價格是美金 20 元

日本國民平均年所得美金 30,000 元

如果以每人一年購買 10 張 CD 計算

台灣人民花費的是所得的 1/105

美國人民花費的是所得的 1/266

日本人民花費的是所得的 1/150

假設上述網路消息的敘述是對的，針對這則消息請問，作為一個對企業管理學術領域稍有認知的工作者，試申述您的看法？（25%）

Remark: Answers to the following English questions can be written in either Chinese or English.

3. Individuals work together through organization which many devices and mechanisms among persons are so arranged that their cooperation and activities can be effective and efficient. The Internet and e-commerce are powerful tools for business development and have great impacts on management practices and structures of their organizations. Nowadays, companies (organizations) may cooperate with each other through building an alliance, which can be called a "superorganization" (i.e., an organization of organizations) or many other names (such as "network" or "supply chain"). Thanks to the advances of information technology, the interorganizational alliances can obtain big advantages in efficiency and win their markets.

(a) List and describe the main issues a company has to address when she design her own company's organization for better effectiveness and efficiency. (13%)

(b) List and describe the major problems a central company (the leader of an alliance) has to deal with when she design her superorganization to compete in a turbulent environment. (12%)

4. Ability to understand the motivation process of their employee is one of the key competencies of a successful manager. Meanwhile, as the business world has been proceeding into the 21st century, "knowledge management" and "organizational learning" are two challenging aspects that a modern manager has to cope with.

(a) Choose two of your favorite theories of motivation process in the traditional management literature. Describe, separately, their main ideas and basic assumptions about human natures. Then, briefly compare and contrast the similarities and differences between them. (13%)

(b) Among the two theories you chose above, which one is more suitable or adaptable for the management practices in the present days, if the issues of "organizational learning" and "knowledge management" are taken into consideration? Explain and justify your answers. (12%)

國立中山大學九十一學年度博士班招生考試試題

科目：統計學【企管系】

共 3 頁 第 1 頁

1. 如果隨機變數 X 的機率密度函數 (p.d.f.) 是
 $f(x) = 2(1-x), 0 < x < 1.$
 求 X 的期望值(expectation) 與變異數(variance)。(10%)

2. 從歷屆學長姐的經驗得知某統計老師當人的比例約百分之二十。
 假設這位老師今年開的統計課有一百人修。
 請用常態分配估計不超過(含)二十位被當掉的機率。(10%)

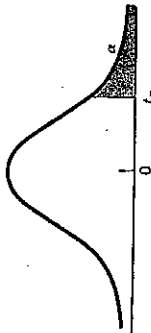
3. 隨機從常態分配的母體抽樣，樣本數 20，樣本平均數為 182，標準差 2.3。
 用 $\alpha = .05$ 檢測 $H_0 = 181$ v.s. $H_a > 181$ 。(10%)

4. 為比較 A, B 兩族群女性第一次結婚年齡的差異，隨機在各族群抽樣 100 位已婚婦女並記錄其第一次結婚的年齡，結果如下

	A	B
Mean	20.7	18.5
s.d.	6.3	5.8

請建構 $\mu_1 - \mu_2$ 95%的信賴區間，並用 $\alpha = .02$ 來檢定這兩族群女性初婚年齡是否有顯著差異。(20%)

TABLE 4 Percentage Points of t Distributions



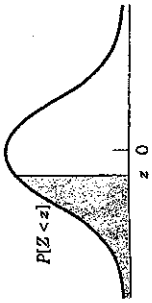
α \ d.f.	25	.10	.05	.025	.01	.00833	.00625	.005
1	1.000	3.078	6.314	12.706	31.821	38.190	50.923	63.657
2	.816	1.886	2.920	4.303	6.965	7.649	8.860	9.925
3	.765	1.638	2.353	3.182	4.541	4.857	5.392	5.841
4	.741	1.533	2.132	2.776	3.747	3.961	4.315	4.604
5	.727	1.476	2.015	2.571	3.365	3.534	3.810	4.032
6	.718	1.440	1.943	2.447	3.143	3.287	3.521	3.707
7	.711	1.415	1.895	2.365	2.998	3.128	3.335	3.499
8	.706	1.397	1.860	2.306	2.896	3.016	3.206	3.355
9	.703	1.383	1.833	2.262	2.821	2.933	3.111	3.250
10	.700	1.372	1.812	2.228	2.764	2.870	3.038	3.169
11	.697	1.363	1.796	2.201	2.718	2.820	2.981	3.106
12	.695	1.356	1.782	2.179	2.681	2.779	2.934	3.055
13	.694	1.350	1.771	2.160	2.650	2.746	2.896	3.012
14	.692	1.345	1.761	2.145	2.624	2.718	2.864	2.977
15	.691	1.341	1.753	2.131	2.602	2.694	2.837	2.947
16	.690	1.337	1.746	2.120	2.583	2.673	2.813	2.921
17	.689	1.333	1.740	2.110	2.567	2.655	2.793	2.898
18	.688	1.330	1.734	2.101	2.552	2.639	2.775	2.878
19	.688	1.328	1.729	2.093	2.539	2.625	2.759	2.861
20	.687	1.325	1.725	2.086	2.528	2.613	2.744	2.845
21	.686	1.323	1.721	2.080	2.518	2.601	2.732	2.831
22	.686	1.321	1.717	2.074	2.508	2.591	2.720	2.819
23	.685	1.319	1.714	2.069	2.500	2.582	2.710	2.807
24	.685	1.318	1.711	2.064	2.492	2.574	2.700	2.797
25	.684	1.316	1.708	2.060	2.485	2.566	2.692	2.787
26	.684	1.315	1.706	2.056	2.479	2.559	2.684	2.779
27	.684	1.314	1.703	2.052	2.473	2.552	2.676	2.771
28	.683	1.313	1.701	2.048	2.467	2.546	2.669	2.763
29	.683	1.311	1.699	2.045	2.462	2.541	2.663	2.756
30	.683	1.310	1.697	2.042	2.457	2.536	2.657	2.750
40	.681	1.303	1.684	2.021	2.423	2.499	2.616	2.704
60	.679	1.296	1.671	2.000	2.390	2.463	2.575	2.660
120	.677	1.289	1.658	1.980	2.358	2.428	2.536	2.617
∞	.674	1.282	1.645	1.960	2.326	2.394	2.498	2.576

國立中山大學九十一學年度博士班招生考試試題

科目：統計學【企管系】

共 3 頁 第 2 頁

Standard Normal Probabilities



z	.00	.01	.02	.03	.04	.05	.06	.07	.08	.09
-3.5	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002	.0002
-3.4	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003	.0003
-3.3	.0005	.0005	.0005	.0004	.0004	.0004	.0004	.0004	.0004	.0003
-3.2	.0007	.0007	.0006	.0006	.0006	.0006	.0006	.0005	.0005	.0005
-3.1	.0010	.0009	.0009	.0009	.0008	.0008	.0008	.0008	.0007	.0007
-3.0	.0013	.0013	.0013	.0012	.0012	.0011	.0011	.0011	.0010	.0010
-2.9	.0019	.0018	.0018	.0017	.0016	.0016	.0015	.0015	.0014	.0014
-2.8	.0026	.0025	.0024	.0023	.0023	.0022	.0021	.0021	.0020	.0019
-2.7	.0035	.0034	.0033	.0032	.0031	.0030	.0029	.0028	.0027	.0026
-2.6	.0047	.0045	.0044	.0043	.0041	.0040	.0039	.0038	.0037	.0036
-2.5	.0062	.0060	.0059	.0057	.0055	.0054	.0052	.0051	.0049	.0048
-2.4	.0082	.0080	.0078	.0075	.0073	.0071	.0069	.0068	.0066	.0064
-2.3	.0107	.0104	.0102	.0099	.0096	.0094	.0091	.0089	.0087	.0084
-2.2	.0139	.0136	.0132	.0129	.0125	.0122	.0119	.0116	.0113	.0110
-2.1	.0179	.0174	.0170	.0166	.0162	.0158	.0154	.0150	.0146	.0143
-2.0	.0228	.0222	.0217	.0212	.0207	.0202	.0197	.0192	.0188	.0183
-1.9	.0287	.0281	.0274	.0268	.0262	.0256	.0250	.0244	.0239	.0233
-1.8	.0359	.0351	.0344	.0336	.0329	.0322	.0314	.0307	.0301	.0294
-1.7	.0445	.0436	.0427	.0418	.0409	.0401	.0392	.0384	.0375	.0367
-1.6	.0543	.0537	.0526	.0516	.0505	.0495	.0485	.0475	.0465	.0455
-1.5	.0663	.0655	.0643	.0630	.0618	.0606	.0594	.0582	.0571	.0559
-1.4	.0808	.0793	.0778	.0764	.0749	.0735	.0721	.0708	.0694	.0681
-1.3	.0968	.0951	.0934	.0918	.0901	.0885	.0869	.0853	.0838	.0823
-1.2	.1151	.1131	.1112	.1093	.1075	.1056	.1038	.1020	.1003	.0985
-1.1	.1357	.1335	.1314	.1292	.1271	.1251	.1230	.1210	.1190	.1170
-1.0	.1587	.1562	.1539	.1515	.1492	.1469	.1446	.1423	.1401	.1379
-0.9	.1841	.1814	.1788	.1762	.1736	.1711	.1685	.1660	.1635	.1611
-0.8	.2119	.2090	.2061	.2033	.2005	.1977	.1949	.1922	.1894	.1867
-0.7	.2420	.2389	.2358	.2327	.2297	.2266	.2236	.2206	.2177	.2148
-0.6	.2743	.2709	.2676	.2643	.2611	.2578	.2546	.2514	.2483	.2451
-0.5	.3085	.3050	.3015	.2981	.2946	.2912	.2877	.2843	.2810	.2776
-0.4	.3446	.3409	.3372	.3336	.3300	.3264	.3228	.3192	.3156	.3121
-0.3	.3821	.3783	.3745	.3707	.3669	.3632	.3594	.3557	.3520	.3483
-0.2	.4207	.4168	.4129	.4090	.4052	.4013	.3974	.3936	.3897	.3859
-0.1	.4602	.4562	.4522	.4483	.4443	.4404	.4364	.4325	.4286	.4247
-0.0	.5000	.4960	.4920	.4880	.4840	.4801	.4761	.4721	.4681	.4641

國立中山大學九十一學年度博士班招生考試試題

科目：統計學【企管系】

共 3 頁 第 3 頁

5. (5分) 令隨機變數 Y 的期望值與變異數分別為 μ_Y 與 σ_Y^2 ，且其目標值為 τ ，請證明 $E[(Y-\tau)^2] = \sigma_Y^2 + (\mu_Y - \tau)^2$ 。

6. (每小題 5 分) One-way ANOVA 中， $Y_{ij} = \mu + \alpha_i + \varepsilon_{ij}$ $i = 1, \dots, I$ $j = 1, \dots, J$ ，

(a) 請說明 α_i 與 ε_{ij} 的假設條件。

(b) 請寫出主要檢定內容，包含虛無與對立假設。

(c) 請寫出 ANOVA 表包含變因、自由度、平方和(公式)、均方、顯著性檢定等。

(d) 請證明 (c) 之 ANOVA 表中總平方和 = 組內平方和 + 組間平方和，例如 $SST = SSt + SSE$ 。

7. (每小題 5 分) 模擬方法中常以電腦產生某一特定分配的隨機樣本，請回答下列問題：

(a) 令 F 表為任一隨機變數 X 之累積分配函數(C.D.F.)。若令 $Y = F(X)$ ，請證明隨機變數 Y 之分配為零與壹之間的均勻分配(註：可表示為 $Y \sim U(0,1)$)。

(b) 請根據 (a)，以 Excel 產生一組 $n=50$ 之標準常態分配隨機樣本(註：請寫明產生的步驟與所需用到 Excel 的函數，不必寫出實際資料數據)。

8. (每小題 5 分) 某工程顧問公司對每一專案均個別指派一位專案主任負責整個案子之進行。為提高管理效率，公司找出影響專案利潤的兩個重要因子為專案主任資歷與專案總金額，其 18 個專案的資料如下。請分析上述資料，並對專案主任的管理制度提出建言。

專案利潤	專案主任資歷 (年)	專案總金額 (仟元)	專案利潤	專案主任資歷 (年)	專案總金額 (仟元)
2.0	4	5.1	5.0	6	4.3
3.5	4	3.5	6.0	2	2.9
8.5	2	2.4	7.5	2	1.1
4.5	6	4.0	4.0	4	2.6
7.0	2	1.7	4.0	6	4.0
7.0	2	2.0	1.0	4	5.3
2.0	4	5.0	5.0	6	4.9
5.0	2	3.2	6.5	6	5.0
8.0	6	5.2	1.5	4	3.9

(a) 請選擇一個合適的方法進行分析，請寫明統計模式。

(b) 請寫出 (a) 中電腦之變數與輸入資料。

(c) 請針對此問題之管理制度提出建言。

國立中山大學九十一學年度博士班招生考試試題

科目：經濟學【企管系】

共 2 頁 第 1 頁

1. (15 分；每小題 5 分)

電影『美麗境界』(A Beautiful Mind) 中描述了賽局論大師納許(John Nash) 戲劇化的生平。在瘋狂與天才之間，納許留給世人許多有別於新古典經濟學(Neoclassical Economics)的思維，對於我們理解人類經濟活動有深遠的影響。請簡要說明下列因納許而發展的觀念；請分別說明(1)數學公式(2)經濟意義(3)可能應用之情況：

- (1) Non-cooperative Nash Equilibrium
- (2) Cooperative Nash Solution
- (3) Bayesian Nash Equilibrium

2. (15 分；每小題 5 分)

為因應知識經濟的發展趨勢，行政院於民國 89 年 8 月 30 日第 2696 次院會，核定通過「知識經濟發展方案」，希望透過此一方案的實施，於十年內達到先進知識經濟國家水準。請簡要回答下列問題，每小題之答題請限於 100 字之內。

- (1) 我國推動「知識經濟發展方案」之經濟背景。
- (2) 「知識經濟發展方案」之基本構想與內容。
- (3) 「知識經濟發展方案」之具體措施(請以條例方式列出至少 5 項)。

3. (20 分；第 1、2 小題各 5 分，第 3 小題 10 分)

某甲對風險的偏好可用一個預期效用(Bernoulli utility function): $u(x) = (x)^{0.5}$ ，請回答下列問題。

- (1) 假設某甲之期初財富 $w = 5$ ，請問 coefficient of Arrow-Pratt absolute 以及 relative risk aversion 各為何？
- (2) 有一個具風險的遊戲可表達為(16,4; 0.5,0.5) (得到 16 或 4 之機率均為 0.5)，請計算某甲對此一遊戲之 certainty equivalent。
- (3) 若風險遊戲的報酬變更為(36,16; 0.5,0.5)，請問某甲之 certainty equivalent 會如何變動？請分析此一變化之經濟意義。

4. (10 分；每小題 5 分)

The government provides a price support for crop at p^* (consumers buys as much as they want and government guarantees it will buy as much as necessary so that firms can sell as much as they want at p^*). The government destroys all that it purchases.

- (1) Show the market price and quantity, deadweight loss and total welfare.
- (2) Bad weather causes the market supply curve to shift to the left so that it is parallel to the original one. What is the effect of the supply shock on market price and quantity, deadweight loss, and total welfare if the government's price support is still binding.

國立中山大學九十一學年度博士班招生考試試題

科目：經濟學【企管系】

共 2 頁 第 1 頁

5. (10 分)

A monopoly publisher of a book pays its author a royalty equal to a fraction α times the revenues from the sale of the book. Does the sum of the publisher's profit and the author's royalty equal the monopoly profit that the publisher would make if it did not have to pay the author's a royalty? Why or why not?

6. (15 分；每小題 5 分)

Consider a consumer with the following utility function $U(x, y) = 4x^{\frac{3}{4}}y^{\frac{1}{4}}$, where we consider strictly positive quantities consumed of two goods X and Y.

(1) Find an expression for his/her marginal utility with respect to each of the goods.

What are these marginal utilities when he/she consumes 2 units of good X and 32 units of good Y? Interpret the meaning of your findings.

(2) Write out an expression for this consumer's indifference curve corresponding to $\sqrt{2}$ units of utility.

(3) Let this consumer have a budget of \$128 at his disposal. The market prices of X and Y are \$48 and \$1 respectively. How much will he/she consume of each good?

7. (15 分；第 1 小題 5 分，第 2 小題 10 分)

The world market for commercial aircraft is dominated by the two large manufacturers, Airbus and Boeing. Suppose that the world (monthly) demand for a standardized aircraft (e.g., a 767 type plane) is given by: $P(Q) = 100 - Q$, where $Q = q_A + q_B$ is total production with q_A and q_B being Airbus (A) and Boeing (B) production. Assume that each company has constant unit cost of production of 25 and that any fixed cost is entirely sunk. Throughout this problem, we assume that the two aircraft manufacturers behave as Cournot duopolists.

(1) Find the equilibrium Cournot quantities, market price and firm profits.

Suppose that, using the fact that it is a government consortium, Airbus appeals to the European Community (EC) to subsidize its production. Assume that it succeeds in getting a subsidy of s per plane produced so that its unit cost becomes $25 - s$.

(2) Under the assumption that it will internalize any increase in Airbus' profits (that is to say, it will maximize the net benefit of the subsidy scheme to the EC: increase in Airbus' profits less the amount of the subsidy), what is the optimal value of s ?